

# Learning Styles and PowerPoint

## A new and exciting approach

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## Learning Styles and PowerPoint: A new and exciting approach

About why PowerPoint is better - in fact, much better – than blackboard and chalk or transparencies. And about how to design and use a PowerPoint presentation in the best way possible.

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## PowerPoint in practice

PowerPoint is a presentation program that offers a wealth of opportunities.

But a presentation is never better than the person who has designed it. And most people have seen memorable examples of how it should NOT be done.

The good news is that it is actually not difficult to put together a presentation so that it works, that is, so that the audience actually learns something.

There is a set of simple rules to be followed. And those rules are based on Learning Styles.

On the following pages you will find the basic ideas of the Learning Styles Model developed by two US researchers, Dr. Rita Dunn and Dr. Kenneth Dunn. After that follows the ground rules for designing a successful PowerPoint presentation.

## Learning Styles

Learning Styles (LS) can be defined as the way each person begins to

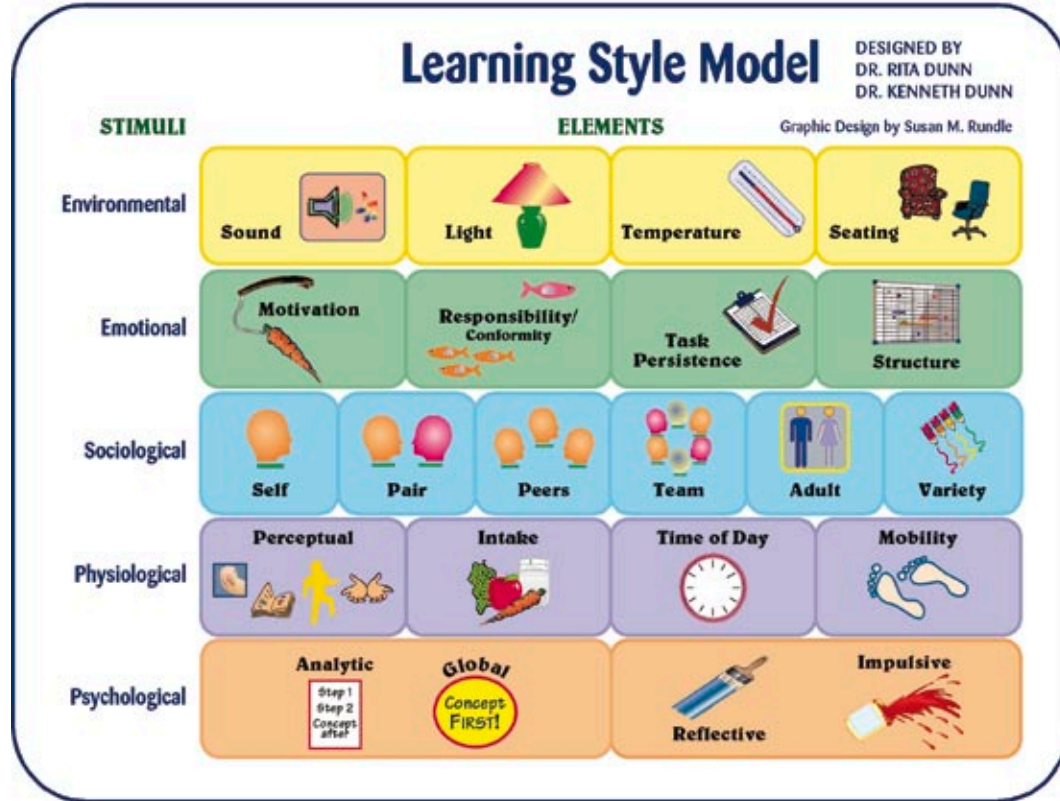
- Concentrate on new and difficult information;
- Process this information;
- Internalize and retain this information and
- Use this information.

All of it is something that we would like to achieve with our PowerPoint presentations.

In other words, we can benefit from taking Learning Styles into consideration when we design our presentations, but what do we mean by Learning Styles?

The Dunn & Dunn Learning Styles Model operates with 20 elements that are fundamental to our learning. The model is aligned with the learning systems of the brain, and it comprises all age groups. It has been thoroughly researched and has already proven its strength.

You can learn more at [www.learningstyles.net](http://www.learningstyles.net) and also find links to LS tests for all age groups.



### WHICH ELEMENTS?

We cannot go into detail with the Dunn & Dunn Learning Styles Model here. Instead we will focus on the elements that are especially important when we are to design PowerPoint presentations, that is, the elements that we can include directly in the design of the presentation and in the presentation itself.

Obviously it is not possible to produce presentations that accommodate each individual person's LS profile in detail. However, by following the guidelines below, we can reach a very wide audience.

The most important elements in this connection are

- Analytic versus global information processing
- Sensory modalities
- Need for structure

### ANALYTIC VERSUS GLOBAL INFORMATION PROCESSING

Some people learn best when they have new and difficult information presented step by step in a logical sequence; they are called analytics.

Others (most people) learn best when they have new and difficult information presented in large chunks which they can then investigate further themselves; they are called globals.

Finally, there is a small group of people who do not prefer one way rather than the other; they can approach new and difficult information both analytically and globally.



## SENSORY MODALITIES

The Dunn & Dunn model comprises four sensory modalities:

- **The auditory:** You learn by listening.
- **The visual:** You learn by seeing text (reading) or by seeing real or mental pictures.
- **The tactual:** You learn by using your hands and feet.
- **The kinesthetic:** You learn by using your whole body and / or by involving yourself as a person.

## STRUCTURE

With respect to the structure of new and difficult information, some people need support; they prefer to have a firm structure provided for them.

Others prefer to create that structure themselves; they reject having a structure created for them.



# The PowerPoint presentation

## How to integrate Learning Styles in the PowerPoint presentation

It is important to remember that any PowerPoint presentation consists of three elements, and that these elements should be considered a whole that cannot be divided:

- The slides on the screen
- The handout, i.e. the printed version of the slides  
(Choose: File > Print. Choose 'Handouts' in the print dialog box).
- The live presentation

In connection with the slides and the handout, we must consider layout, and in connection with the live presentation, we must consider our performance.

But first of all, and without any connection to Learning Styles,

- **Do not ever just read the text written on the slide. If you do that, the presentation will be what we call "a snoozer".**
- **You should use the text on the slide as a springboard for what you say.**

## ANALYTIC AND GLOBAL INFORMATION PROCESSING

Both ways of processing information are accommodated in the interchange between the slides on the screen and the handout:

### The analytic learner

- A presentation in which information is presented step by step benefits the analytic learner.
- Therefore, you should use bullet points and animations, e.g. 'Fly in' with direction 'From left'; as a general rule, do not use different animations in the same slide.
- Teach the analytic learner how to use the handout to create an overview of the information that has been presented at the end of the live presentation.
- Pause for a couple of seconds before you move on to the next slide in your presentation; it gives the analytic learner a chance to collect his/her thoughts.

### The global learner

- The global learner should learn how to create an overview of the information to be presented by skimming through the handout before the presentation begins; then s/he is able to concentrate on the screen slides.
- The global learner likes colors and pictures that support his/her learning. This must be exploited, cf. p. 16 onwards



## TIPS AND TRICKS – INFORMATION PROCESSING

We often need to use text that explains or supplements pictures and graphs through the addition of labels, layers and animation, etc. in a presentation.

Globals never get tired of fun forms and lots of colors, but for the analytic learner this is a hassle.

When we design presentations that are to appeal to both types of learners, we need to take this into consideration and strike the right balance between too much and too little of these effects.

Neither globals nor analytics can absorb an uninterrupted stream of information. You should therefore pause for 10-20 seconds after every seventh slide. Remember to tell your audience that there will be such pauses or 'time-outs' in your presentation.

## SENSORY MODALITIES

**The auditory modality** is taken into consideration by what the presenter says and his tone of voice. You should always be mindful of your pace and tone of voice. Keep an eye on the reactions of your audience.

**The visual modality** is taken into consideration by the presentation on the screen as well as the hand-out. It goes for both of these that you should work conscientiously with the layout, cf. p. 14 onwards.

**The tactual and the kinesthetic modalities** are taken into consideration by the handout. Touching the handout, maybe even printing it out themselves, and definitely moving it around on the table, leafing through it, writing in it, etc. are important activities for both types of learners. The kinesthetic learners will do so more than will the tactual; even though the whole body is not involved, they will still benefit from it.

# Design and presentation of slides

## Amount of information in each slide

It is important to keep the amount of information on each slide to a minimum. It is much better to have more slides than a few illegible ones. We have all seen overfilled slides, and they are just as impossible to read and process as are overfilled transparencies.

## Follow the rule of $7 \pm 2$

Our working memory processes information step by step and can never handle more than 5-9 information units at the time. In other words, 7 is the average that we should use as our guideline; if we provide less than 5 information units, we do not exploit the potential of the memory to a sufficient degree, and if we exceed 9 units, it becomes too much for the memory to process – thus the  $7 \pm 2$  rule.

‘Information unit’ is obviously an ambiguous concept. It is linked to the learner’s existing knowledge and the way we present the material. For those who have never seen a computer before, the concept of a mouse is very intriguing, and they must process many bits of information in order to understand it. For those who use computers on a daily basis, the concept of a mouse is one and only one information unit.

Colors and pictures are also information. The picture must therefore be related to the verbal content so that it does not challenge the working memory unnecessarily, and it is important to limit the number of colors in one slide, cf. p. 21.

## FONTS AND FONT SIZES

- Use **font size 24** as a minimum (as in this example).

When we use this font size, it is easy to adhere to the  $7 \pm 2$  rule. There simply is not space for more than 5 bullets, and that is perfect.

Use sans serif fonts like

- **Verdana**
- **Arial**
- **Franklin Gothic Book**

or similar fonts.

Avoid fonts like

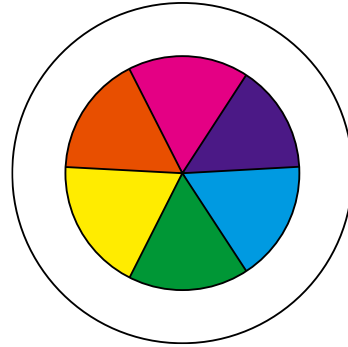
- **TIMES NEW ROMAN**
- **Bernard Condensed**

Sans serif fonts are most suitable for slides because the screen solution is much less than it is on paper. Fonts with serifs or ‘feet’ are therefore more difficult to read on the screen.



## COLORS

Colors are very important elements in the PowerPoint presentations, but you cannot just decide which colors to use at random. Colors may be used to influence your audience – and to attract the attention of your audience.



We distinguish between cool, tepid (middle) and warm colors.

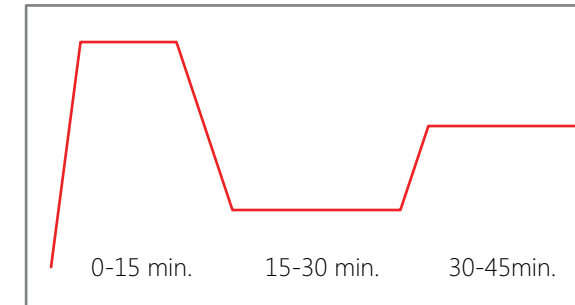
- The cool colors (**blue**, **violet**) lower the blood pressure, the respiratory frequency and the pulse.
- They create and enhance calmness.
- The warm colors (**yellow**, **red-orange**) increase the blood pressure, the respiratory frequency and the pulse.
- They cause a certain level of stress.
- With the stress, the level of the hormone noradrenalin increases in the brain, and noradrenalin increases our attention and our learning.
- The tepid colors (**green**, **pink**) are in the middle.
- They create some calmness, but at the same time they also increase attention.

## COLOR AND ATTENTION

In the course of 40-45 minutes (a typical class session), the attention of the audience may be described in three phases

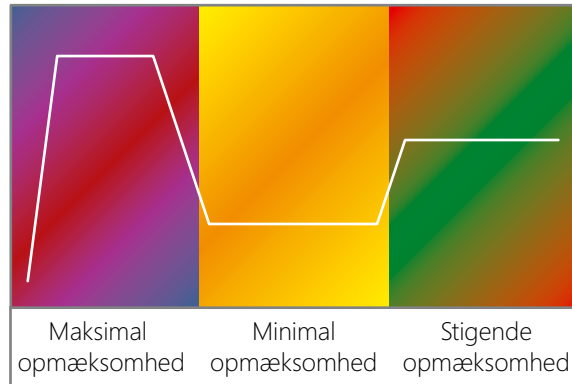
- In the first few minutes, the attention increases significantly and remains at a high level for 10-12 minutes.
- After the first 15 minutes, the attention plunges and remains at a very low level.
- After yet another 15 minutes, attention increases again, but it does not reach the high level of the first phase.

This may be illustrated as follows:



### The three types of colors and the three attention phases

It is a good idea to use the cool, warm and tepid colors as background colors on the screen: From blue and/or violet via yellow and/or orange to red and/or green. You can then change the background color in accordance with the three phases of attention.



Alternatively, you can use a neutral (white or grey) background and insert graphics, i.e. pictures, symbols, WordArt, etc. in the appropriate color.

Obviously, graphics often have many colors, also colors that are not on our list here. However, if only colors are used consistently, much has been achieved.



## MORE COLOR TIPS AND TRICKS

### The perceptual order

- Red is in the foreground.
- Yellow is in the middle; the same goes for green.
- Blue is in the background.



### More tips and trick – more colors

Many colors are confusing and make the eyes jump. The use of many colors tires the audience and should be avoided.



Remember that colors are also information units, and if we use too many colors, we end up exceeding the  $7 \pm 2$  limit.

Remember also that the color blue is hard to see on a white background.

Here you see how difficult it is to see the text and the line below

# PowerPoint as exercise materials

So far we have looked at presentations that are run by the presenter. But the PowerPoint presentations may also be used to produce material for the learner to use independently. Here we should also follow a set of guidelines that builds on those that have already been presented. However, when used for exercise materials, PowerPoint functions differently because there is no presenter and no handout.

## Materials for the analytic learner

- Basic principles
  - P2W (Part to Whole)
  - KISS (Keep It Simple, Stupid!).
- Avoid using colored text; use black text.
- If you want variation, use a grey shade for the text.
- Use bullet points and animation for the individual bullets or chunks of text; use 'Fly in' with direction 'From left'.
- With information in tables, it may be a good idea to let the information on the right hand side fly in from the right.
- Other types of animation should be avoided.

## Materials for the global learner

- Basic principles
  - FUC (FUn and Color)
  - Many globals prefer a font like **Comic Sans MS**.
- Use bullet points, but avoid animation as much as possible. Globals want large chunks of information in one go.
- If you do use animations, you may choose to use different kinds of animation (choose 'Random effects').

An example of exercises for analytics and globals may be found at <http://www.sprog.asb.dk/OL/STARTPAKKE/Hjaelpemidler%20tysk.htm> under "øvelse i sætningsanalyse".



Microsoft

